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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/827,927	04/09/2001	Takeo Hara	205746US0	8486

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EXAMINER
COTHORN, JUDITH A

ART UNIT	PAPER NUMBER
2822	

DATE MAILED: 10/07/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/827,927	Applicant(s) HARA ET AL.	
	Examiner Judith A. Cothorn	Art Unit 2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 June 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-56* is/are pending in the application.

4a) Of the above claim(s) *1-11,14-17,27-29,39-46 and 48-55* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12,13,18-26,30-38,47 and 56* is/are rejected.

7)☒ Claim(s) *56* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3 and 6* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

This office action is in response to the election filed on 6/17/02.

Election/Restrictions

1. Applicant's election with traverse of a method of making a semiconductor device in Paper No. 8 is acknowledged. The traversal is on the ground(s) that the process isn't materially different from the claimed process and a burden does not exist in the searching of all the claims. This is not found persuasive because the product could be made without the use of a magnetic field. Additionally, a burden does exist in the searching of all the claims as shown by their different classifications in the original restriction requirement.

The requirement is still deemed proper and is therefore made FINAL.

Claim Objections

2. Claim 56 is objected to as being dependent on a withdrawn claim.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 56 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite and unclear. Is each sheet of claims 49-55 used or is only one of the sheets used. Moreover, because of the multiple dependencies of claims 51, 52, 54, and 55, it is unclear as to what Applicant is actually attempting to claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in-
> (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
> (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

4. Claims 12 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Jiang et al. (6,011,307).

Jiang et al. disclose a method comprising the steps of: sheeting a composite sheet comprising a magnetic fibrous filler and a binder, said binder comprising a photocuring component and a thermosetting component (column 5, lines 45-50); applying a magnetic field to the composite sheet in the direction of the thickness of the composition sheet so as to orientate the magnetic fibrous filler in the direction of the thickness of the sheet (column 5, line 64-column 6, line 2); and curing the photocuring component of the sheeted composition thereby obtaining a semi-cured composite sheet (column 5, lines 50-55) by heating and/or light irradiation.

5. Claim 13 is rejected under 35 U.S.C. 102(e) as being anticipated by Kajiwara et al. (US2002/0056906).

Kajiwara et al. disclose a method of using comprising the steps of: interposing the semi-cured composite sheet between an electrode part of a semiconductor element or package and a wiring part of a circuit substrate (paragraph 15); and curing the thermosetting component of the semi-cured sheet so that the electrode part and the wiring part are electrically connected (paragraph 15).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 19-22, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jiang et al. (6,011,307) in view of McArdle et al. (6,180,226).

Jiang et al fail to disclose the attachment of a noble metal to the surface of a conductive filler, the metallic fiber having magnetism in direction of fiber axis and circumference and having a magnetic substance adhering thereto on its surface, and a fiber having magnetic susceptibilities being a carbon fiber.

McArdle et al disclose the attachment of a noble metal to the surface of a conductive filler (column 21, lines 6-10), the metallic fiber having magnetism in direction of fiber axis and circumference and having a magnetic substance adhering thereto on its surface, and a fiber having magnetic susceptibilities being a carbon fiber (column 11, lines 6-14).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Jiang et al. as taught by McArdle et al. because the

use of a noble metal attached to the surface of a conductive filler or the use of a carbon fiber are common materials used for forming a magnetic material to be used in a anisotropic conductive resin. Additionally, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a metallic fiber having magnetism in the direction of the fiber axis in order to connect one electrical component to a second electrical component.

7. Claims 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jiang et al. (6,011,307) as applied to claim18 above, and further in view of Doi (6,103,359).

Jiang et al fail to disclose a plurality of projections arranged in the form of stripes or islands on the surface of the magnetic pole; concave portions filled with nonmagnetic material on the surface of the magnetic plates; and wherein projections of given configuration of a non magnetic material are adhered onto the magnetic pole plate surfaces.

Doi discloses a plurality of projections arranged in the form of stripes or islands on the surface of the magnetic pole; concave portions filled with nonmagnetic material on the surface of the magnetic plates so that the surface of the magnetic pole plates are planar; and wherein projections of given configuration of a non magnetic material are adhered onto the magnetic pole plate surfaces (figs. 1-4 and 8-11; column 2, lines 22-38).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Jiang et al. to have a plurality of projections on the surface of the magnetic plates as taught by Doi et al. in order to have the conductive fibers concentrated in one zone for better electrical connection of semiconductor components.

8. Claims 30, 36-38, and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jiang et al. (6,011,307) in view of Doi (6,103,359).

Jiang et al. disclose a method comprising the steps of: sheeting a composite sheet comprising a magnetic fibrous filler and a binder, said binder comprising a photocuring component and a thermosetting component (column 5, lines 45-50); applying a magnetic field to the composite sheet in the direction of the thickness of the composition sheet so as to orientate the magnetic fibrous filler in the direction of the thickness of the sheet (column 5, line 64-column 6, line 2); and curing the photocuring component of the sheeted composition thereby obtaining a semi-cured composite sheet (column 5, lines 50-55) by heating and/or light irradiation.

Jiang et al fail to disclose a plurality of projections arranged in the form of stripes or islands on the surface of the magnetic pole; concave portions filled with nonmagnetic material on the surface of the magnetic plates; and wherein projections of given configuration of a non magnetic material are adhered onto the magnetic pole plate surfaces.

Doi discloses a plurality of projections arranged in the form of stripes or islands on the surface of the magnetic pole; concave portions filled with nonmagnetic material on the surface of the magnetic plates so that the surface of the magnetic pole plates are planar; and wherein projections of given configuration of a non magnetic material are adhered onto the magnetic pole plate surfaces (figs. 1-4 and 8-11; column 2, lines 22-38).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Jiang et al. to have a plurality of projections on the surface of the magnetic plates as taught by Doi et al. in order to have the conductive fibers concentrated in one zone for better electrical connection of semiconductor components.

9. Claims 31-34, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jiang et al. (6,011,307) as applied to claim 30 above, in view of McArdle et al. (6,180,226).

Jiang et al fail to disclose the attachment of a noble metal to the surface of a conductive filler, the metallic fiber having magnetism in direction of fiber axis and circumference and having a magnetic substance adhering thereto on its surface, and a fiber having magnetic susceptibilities being a carbon fiber.

McArdle et al disclose the attachment of a noble metal to the surface of a conductive filler (column 21, lines 6-10), the metallic fiber having magnetism in direction of fiber axis and circumference and having a magnetic substance adhering thereto on its surface, and a fiber having magnetic susceptibilities being a carbon fiber (column 11, lines 6-14).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Jiang et al. as taught by McArdle et al. because the use of a noble metal attached to the surface of a conductive filler or the use of a carbon fiber are common materials used for forming a magnetic material to be used in a anisotropic conductive resin. Additionally, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a metallic fiber having magnetism in the direction of the fiber axis in order to connect one electrical component to a second electrical component.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additionally cited art discloses a method for forming an anisotropically conductive sheet.

Matsubara (5,034,245) discloses a method of producing connection electrodes using a resin layer and conductive noble metal particles.

Matsui (5,302,456) discloses an anisotropic conductive material containing conductive microcapsules dispersed in a bonding resin that has a curing agent.

Schwartz (US2002/0094196) discloses the thermal conductivities of different thermally conductive materials.

Simons (US2002/0086566) discloses an elastomeric conductive polymer interconnect that has magnetic columns that are aligned.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Judith A. Cothorn whose telephone number is 703-305-4733. The examiner can normally be reached on Mon-Fri, 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr. can be reached on 703-308-4940. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

jac
October 1, 2002

Carl Whitehead

CARL WHITEHEAD, JR.
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